WHAT IS CLAIMED IS:

1. A method for encoding digital image data, said method comprising the steps of:

defining a base image type and a plurality of higher level image types of said digital image data, each said image type having a preassigned one of a plurality of quantization step-size sets;

transforming the digital image data using a subband decomposition to produce a plurality of subbands, each said subband having a plurality of subband coefficients;

quantizing said subband coefficients of each said subband according to said quantization step-size set of said base image type to provide quantized coefficients;

partitioning each said subband into a plurality of codeblocks;

assigning each said codeblocks one of said image types and a corresponding quantization step-size set to provide respective assigned step-size sets;

forming one or more bitplanes from said quantized coefficients of each said codeblock of each said subband; and

discarding at least part of one of said bitplanes having a discard parameter in a predetermined range, said discard parameter being a function of the assigned step-size set of the respective said codeblock.

2. The method of claim 1 wherein said base image type is preassigned the smallest of said quantization step-size sets.

3. The method of claim 1 further comprising encoding said quantized coefficients of each of said codeblocks.

4. The method of claim 3 wherein said discarding is prior to said encoding.

5. The method of claim 3 wherein said discarding follows completion of said encoding.

6. The method of claim 1 wherein:

said digital image data has a plurality of initial pixels, each said initial pixel having a predefined coordinate;

said method further comprises associating a respective one of said image types with each of said coordinates and defining ones of said coordinates contributing to each of said codeblocks; and

said discard parameters are each a function of the respective said images types associated with ones of said coordinates contributing to respective said codeblocks.

7. The method of claim 6 wherein said transforming defines a mapping of said coordinates into a plurality of influence regions; and said method further comprises selecting an image type, in each said influence region, having the corresponding said quantization step-size set of smallest magnitude.

8. The method of claim 7 wherein:

said subband coefficients define a plurality of resultant pixels, said resultant pixels each having a respective one of said coordinates; and

said mapping further comprises designating ones of said resultant pixels contributed to by respective said subband coefficients.

9. The method of claim 1 further comprising:

encoding said quantized coefficients of each of said codeblocks in a plurality of coding passes, each said coding pass generating a partial-bitplane, said partial-bitplanes of each said codeblock together defining a respective bitplane; and

said discarding further comprises discarding at least one partial-bitplane.

10. The method of claim 9 wherein said encoding further comprises entropy encoding.

11. The method of claim 9 wherein said encoding further comprises binary arithmetic encoding.

12. The method of claim 1 wherein the assigned step-size is Δ_j^I , the base type quantizer step-size is Δ_j^B , and the number of bitplanes discarded is

$$\left\lfloor \log_2 \frac{\Delta_j^I}{\Delta_j^B} \right\rfloor .$$

13. The method of claim 12 wherein $\Delta_j^B = 1$.

14. The method of claim 1 further comprising modifying said subband coefficients prior to said quantizing.

15. The method of claim 1 further comprising shrinking said subband coefficients prior to said quantizing.

16. A computer program product for encoding digital image data representing a plurality of pixels, said product comprising: a computer readable storage medium having a computer program stored thereon for performing the steps of:

defining a base image type and a plurality of higher level image types of said digital image data, each said image type having a preassigned one of a plurality of quantization step-size sets;

transforming the digital image data using a subband decomposition to produce a plurality of subbands, each said subband having a plurality of subband coefficients;

quantizing said subband coefficients of each said subband

5 according to said quantization step-size set of said base image type to provide quantized coefficients;

partitioning each said subband into a plurality of codeblocks;

assigning each said codeblocks one of said image types and a corresponding quantization step-size set to provide respective assigned step-size

10 sets;

forming one or more bitplanes from said quantized coefficients of each said codeblock of each said subband; and

discarding at least part of one of said bitplanes having a discard parameter in a predetermined range, said discard parameters each being a function

15 of the assigned step-size set of the respective said codeblock.

17. An image encoder for encoding digital image data representing a plurality of pixels, said encoder comprising:

an image typer, which determines a base image type and a plurality

20 of higher level image types of said digital image data, each said image type having a preassigned one of a plurality of quantization step-size sets;

a transform unit applying a subband decomposition to said digital image data, said transform unit outputting a plurality of subbands, each said subband having a plurality of subband coefficients;

25 uniform quantizer having a deadzone, said quantizer quantizing said subband coefficients according to said quantization step-size set of said base image type to provide quantized coefficients;

a codeblock partitioning unit partitioning each said subband into a plurality of codeblocks;

a classification unit assigning each said codeblocks one of said image types and a corresponding quantization step-size set to provide respective assigned step-size sets;

an encoder forming one or more partial-bitplanes from said

5   quantized coefficients and encoding respective said coefficients; and

a discard unit identifying discardable partial-biplanes, at least one of said partial-bitplanes having a discard parameter in a predetermined range, said discard parameters each being a function of the assigned step-size set of the respective said codeblock.

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18. The image encoder of claim 17 wherein said base image type is preassigned the smallest of said quantization step-size sets.

19. The image encoder of claim 17 wherein said discard unit

15   communicates said discardable partial-bitplanes to said encoder and said encoder excludes said discardable partial-bitplanes from said encoding.

20. The image encoder of claim 17 further comprising a bit-stream organizer combining said partial-bitplanes into a bit-stream.

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21. The image encoder of claim 20 wherein said encoder forms said partial-bitplanes from said quantized coefficients of each said codeblock of each said subband and encodes all of said coefficients; and said discard unit communicates said discardable partial-bitplanes to said bit-stream organizer,

25   which excludes said discardable partial-bitplanes from said bit-stream.

22. The image encoder of claim 17 wherein said encoder is an entropy encoder.

30   23. The image encoder of claim 17 wherein said encoder is an arithmetic binary encoder.